



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,888	12/20/2000	Andrew Beals	CISCP668	8236
26541	7590	11/16/2005		
Cindy S. Kaplan P.O. BOX 2448 SARATOGA, CA 95070			EXAMINER SEFCHECK, GREGORY B	
			ART UNIT 2662	PAPER NUMBER

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/742,888

Applicant(s)

BEALS, ANDREW

Examiner

Gregory B. Sefcheck

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-8, 10-15, 17, 18, 21, 22 and 24-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-8, 10-15, 17, 18, 21, 22, and 24-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Applicant's Amendment filed 8/23/2005 is acknowledged.
- Claims 1, 5, 7, 8, 14, 15, 21, and 22 have been amended.
- The previous objection to claims 5 and 6 is withdrawn in light of the amendment.
- Claims 19, 20, and 23 have been cancelled.
- Claims 2, 9, 16 had been previously cancelled.
- Claims 25 and 26 have been added.
- Claims 1, 3-8, 10-15, 17, 18, 21, 22, and 24-26 remain pending.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 6, 10, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3, 10, and 17 recite the limitation "said time slots" or "said slots", each on line 2 of the respective claim. Due to the amendments made to independent claims 1 and 8, there is insufficient antecedent basis for these limitations in the claims.

Claim 6 recites the limitation "said selected node" on line 2 of the claim. Due to the amendments made to independent claim 5, there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 5 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Larsen (US006785510B2).

- In regards to Claims 5 and 6 (as best understood),

Larsen discloses routing in a multi-station network in which wireless access to a base station and RNC (master) is coordinated for a plurality of nodes (slaves) through their antennas (wireless interface; Title; Fig. 2; claim 5 – method for coordinating access to a shared medium; claim 12 – apparatus executing a computer program for operating a selected node of wireless network; claim 12 – wireless interface).

Referring to Figs. 2, 4a-b and 6a-b, Larsen discloses how extended data service coverage may be provided to a mobile outside the range of the base station through another mobile (submaster) that is within the base station's range (claim 5, 12 – network comprising master, plurality of slaves and at least one submaster).

Nodes MSb, MSc and base station NODEB receive and forward a call setup request from MSa to the base station and RNC. Each forwarding node responds to the

Art Unit: 2662

call setup request (Col. 10, lines 23-51; claim 5,12 – receiving and forwarding registration information from newly contactable node in direct communication with submaster; claim 5,12 - receiving registration response at submaster).

Once the request reaches the RNC, a link assignment is sent back to mobile MSa, relayed through the intermediate nodes. MSa is then enabled to transmit data to the base station through the relay nodes according to the assigned link allocation. (Col. 10, lines 51-59; claim 5,12 – means/code for receiving a time allocation for transmission by new node at selected node from master node; claim 5,12 – means/code for transmitting time allocation to new node; claim 6,13 – selected node receiving a transmission from new node during a timeslot of the time allocation and forwarding the transmission to the master node).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3, 4, 7, 8, 10, 11, 14, 15, 17, 18, 21, 22, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gehring et al. (US 20040028071A1), hereafter Gehring, in view of Larsen (US006785510B2), and further in view of Bandeira et al. (US 20020072329A1), hereafter Bandeira.

- In regards to Claims 1, 4, 7, 8, 11, 14, 15, 18, 21, 22, 25, 26, and 3, 10, and 17 (as best understood),

Gehring discloses an apparatus and software architecture for executing a method of controlling a shared medium in a wireless network (Title; Abstract; Pg. 2, paragraph 16; claim 1,7,14,15,21,22 – apparatus and method executed through a stored computer program for coordinating shared medium access in wireless network).

Referring to Fig. 1, Gehring discloses an apparatus 12 operating as a master node of the wireless network 10 (claim 8 – apparatus for operating master node of wireless network). Antenna 18 allows communication of information via a wireless medium (claim 8,14 – wireless interface for communicating information via a wireless medium).

Gehring shows the master node manages links between itself and all registered slave nodes (Pg. 2, paragraph 17; claim 1,8,15,22 – master node/processor/code/means for recording a contact path to a newly admitted node; claim 4,11,18 – recording of contact path comprises registering a link usable to communicate to the new node to a routing client).

The master node generates a schedule for transmissions from all registered slave nodes within a TDMA frame. Each slave node is allocated a unique time slot for transmission, thereby avoiding collisions (Pg. 3, paragraph 24; claim 1,8,14,15,21,22 – means/code for generating a schedule for node transmission precluding collisions between simultaneous transmission by any pair of nodes; claim 7,14,21 – schedule

Art Unit: 2662

comprises time slots allocated to nodes that can be directly contacted by the master node).

A control section within each frame distributes the schedule to all the registered slave nodes (Pg. 6, paragraphs 62 and 68; claim 1,7,8,14,15,21,22 – means/code for distributing the schedule to nodes controlled by master node).

Gehring does not explicitly disclose the network comprising at least one submaster node which enables the admission of a new slave node that is able to communicate directly with a submaster node but out of range of the master node, in which a contact path from the master node to the new slave node including the submaster node is recorded at the master node.

Larsen discloses routing in a multi-station network in which wireless access is coordinated for a plurality of nodes (Title; Fig. 2). Referring to Figs. 2, 4a-b and 6a-b, Larsen discloses how extended data service coverage may be provided. Larson shows that node MSa (ID003), though out of range of NODEB (ID000), may be added to the network by communicating with NODEB through MSb,c (submaster nodes; claim 1,7,8,14,15,21,22 – network comprising master node, slave nodes and at least one submaster node; claim 1,3,7,10,14,15,17,21 – admission of new slave node able to communicate directly with submaster node but out of range of master node). Larson shows that a contact path from MSa to NODEB is recorded through acknowledgements made by each forwarding node. Link assignment is then sent back to the requesting

Art Unit: 2662

mobile through the intermediate nodes (Col. 10, lines 23-61; claim 1,8,15,22 – recording contact path from master node to new node that includes submaster node).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus and method executed by software on a processor for controlling access to a shared medium of a wireless network of Gehring by enabling admission of new nodes able to communicate directly with a submaster node but out of range of the master node, as shown by Larsen, thereby allowing the coverage area of the network to be extended.

Gehring also does not explicitly disclose a transmission schedule that precludes collisions between simultaneous transmission by any pair of nodes that do not hear each other's transmissions, where the schedule is divided into timeslots and at least one time slot allocated for submaster node and slave node that is out of range of the master node.

Bandeira discloses a scalable wireless network topology for providing access to distributed nodes (Title; Abstract). Referring to Figs. 2 and 4, Bandeira shows that time slots of varying length are used to provide access to a shared medium, with a new node incorporated into the network if within radio frequency range of any existing node in the network even if not in range of the master node. Upon attachment, the attached-to existing node's time slot may be expanded to incorporate the transmission of the new node (Abstract; Pg. 5, paragraphs 59-61; claim 3,7,10,14,17,21,25 - time slot to accommodate submaster and new node that is out of range of master node; claim 26 –

Art Unit: 2662

schedule comprises determining when to expand time slots to accommodate new node). The time slot access shown by Bandeira precludes collisions, including simultaneous transmission by any pair of nodes that do not hear each other's transmissions (Fig. 4; claim 1,8,15,22 – means/code for generating a schedule for node transmission precluding collisions between simultaneous transmission by any pair of nodes that do not hear each other).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus, method and software of Gehring by enabling the use of a schedule that precludes collisions, even of nodes that do not hear each other, as shown by Bandeira. This would enable the network to accommodate nodes at greater distances from the master node such that new nodes would only be required to be within range of an existing slave node, as shown by Bandeira.

7. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larsen.

- In regards to Claims 12 and 13,

Larsen discloses routing in a multi-station network in which wireless access to a base station and RNC (master) is coordinated for a plurality of nodes (slaves) through their antennas (wireless interface; Title; Fig. 2; claim 5 – method for coordinating access to a shared medium; claim 12 – apparatus executing a computer program for operating a selected node of wireless network; claim 12 – wireless interface).

Art Unit: 2662

Referring to Figs. 2, 4a-b and 6a-b, Larsen discloses how extended data service coverage may be provided to a mobile outside the range of the base station through another mobile (submaster) that is within the base station's range (claim 5,12 – network comprising master, plurality of slaves and at least one submaster).

Nodes MS_b, MS_c and base station NODEB receive and forward a call setup request from MS_a to the base station and RNC. Each forwarding node responds to the call setup request (Col. 10, lines 23-51; claim 5,12 – receiving and forwarding registration information from newly contactable node in direct communication with submaster; claim 5,12 - receiving registration response at submaster).

Once the request reaches the RNC, a link assignment is sent back to mobile MS_a, relayed through the intermediate nodes. MS_a is then enabled to transmit data to the base station through the relay nodes according to the assigned link allocation. (Col. 10, lines 51-59; claim 5,12 – means/code for receiving a time allocation for transmission by new node at selected node from master node; claim 5,12 – means/code for transmitting time allocation to new node; claim 6,13 – selected node receiving a transmission from new node during a timeslot of the time allocation and forwarding the transmission to the master node).

Larsen does not explicitly show an apparatus for executing the method through computer program code.

Software development has enabled those skilled in the art to implement systems and methods that operate faster, more efficiently, and at a fraction of the cost of hardware implementations.

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the method of Larsen by an apparatus through a computer program on a computer-readable medium, thereby providing the functionality of the system and method at greater speed and less cost than an equivalent hardware implementation.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larsen in view of Toth et al. (US005708655A), hereafter Toth.

- In regards to Claim 24,

Larsen discloses that interaction between slave and master units may include the MAC layer address of a slave unit (Col. 6, lines 35-45; claim 24 – registration information includes a MAC layer address).

Larsen does not explicitly disclose a registration response that includes an IP address.

Toth discloses a method and apparatus for addressing a wireless station with a dynamically-assigned address. Referring to Fig. 2, Toth shows a sequence in which wireless host 52 is assigned an IP address in response to a registration request (Col. 7, lines 33-46; claim 24 – registration response includes an IP address).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus and method executed by software on a processor for controlling access to a shared medium of a wireless network of Larsen by including an IP address in a registration response to a new node, thereby providing an identification address recognizable to other wireless stations that enables communication of data with the other wireless stations in the network.

Response to Arguments

9. Applicant's arguments with respect to claims rejected over Anvekar have been considered but are moot in view of the new ground(s) of rejection.

10. Applicant's arguments filed 8/23/2005 have been fully considered but they are not persuasive.

- In the Remarks on pg. 14-15 of the Amendment, Applicant contends that Bandeira discloses a transmission schedule configured to avoid collisions within a branch and not between simultaneous transmissions by any pair of nodes including those that do not hear each other's transmissions. Applicant contends that the root (master) node has no knowledge and makes no modification for children nodes of a parent node because a slave node can operate as a master node to control its children separate from the root node. Therefore, not all slave nodes are controlled by the original master node.

Applicant contends that a slave node may not respond to a parent node because it is busy performing its own polling cycle.

- The Examiner respectfully disagrees. Fig. 4 of Bandeira shows that the transmission schedule is arranged in such a way that the polling cycle of slave nodes (submasters) having responsibility for transmissions of further slave nodes are performed with regard to the submaster's position in the root node's polling cycle (i.e. the submaster's polling cycle begins immediately after it is polled by the root node, such that it will have completed its polling cycle prior to being subsequently polled by the root node; see paragraphs 59-61 on pg. 5 of Bandeira). In this way, transmissions from all the slave nodes are controlled, ultimately, by the root node. Therefore, the schedule precludes collisions between simultaneous transmission by any pair of nodes including those that do not hear each other's transmissions, since the polling cycles of submaster nodes may be performed independently while adhering to the constraints of the root node's polling cycle.

- In the Remarks on pg. 16-18 of the Amendment, Applicant contends that Bandeira does not disclose a time slot allocated for both a submaster node and a slave node which is able to contact the submaster node but not within range of the master node. Applicant further contends that Larsen does not remedy this deficiency of Bandeira.

Art Unit: 2662

- The Examiner respectfully disagrees. As shown in the rejection, Larsen discloses a transmission allocated for both a submaster node and a slave node that is able to contact the submaster node but is not within range of the master node. Larsen does not explicitly show the use of time slot allocations for supporting the transmission. For this reason, the time slot allocation of Bandeira is used to show this feature, combined with the disclosure of Larsen, to disclose a time slot allocated for both a submaster node and a slave node which is able to contact the submaster node but not within range of the master node.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2662

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B. Sefcheck whose telephone number is 571-272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GBS
11-9-2005



JOHN PEZZLO
PRIMARY EXAMINER